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The Rocks or Your Lying Eyes

GSA Today Considers the Role of Paradigms in Geological Interpretation

By Zachary Klein

"No hypothesis is so sure that it cannot be called in question by a newly discovered fact. In the domain of the world's knowledge there is no infallibility."

American geologist Grove Karl Gilbert wrote the words above in 1896, in the third volume of the nascent journal *Science*. His words are quoted in a recent article in the Geological Society of America's magazine, *GSA Today*. In the October 2022 issue, the headline article is entitled "The Rocks Don't Lie, But They Can Be Misunderstood," authored by Allen Glazner et al. The *GSA Today* article contains several items of interest to creationists, and we'll summarize a few of them in this article.

Paradigms: Science's Rose-Tinted Glasses

As the opening quote indicates, the *GSA Today* article is concerned with the idea of testing scientific theories and hypotheses, especially those involving geologic interpretations. Glazner and co-authors begin with a very insightful discussion about the role of **paradigms** in science, and how they can affect even the most careful work of a field geologist.

> As field geologists, we have learned that the interpretation of field evidence *is strongly shaped by what one has been taught as well as by prevailing theories and reigning paradigms*. Moreover, one's experience with familiar materials and processes at the Earth's surface influences the interpretation of features that formed at unfamiliar rates and/or physical conditions. The rocks don't lie, **but preconceptions and human experience can cause us to misinterpret** what they reveal to us. (Emphasis added)

Most creationists are familiar with the concept of paradigms (and related ideas such as worldviews) which serve as a set of "glasses" through which we observe and organize the evidence that we find in the world. The *GSA Today* article correctly warns us that these preconceptions can cause us to misinterpret the observed evidence, especially when it involves events and/or processes that are not observable today.

Another author who contributed much to our thinking about scientific paradigms is Thomas Kuhn, author of the influential book, *The Structure of Scientific Revolutions*. In a later anthology, Kuhn observed:

> Under normal conditions the research scientist is not an innovator but a solver of puzzles, and **the puzzles upon which he concentrates are just those which he believes can be both stated and solved** within the existing scientific tradition. (*The Philosophy of Science*, Edited by Boyd, Gasper, & Trout, Chapter 7, p.144. Emphasis added)

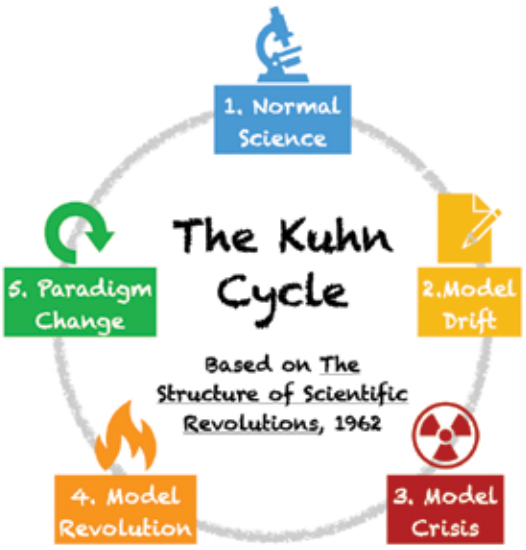

Figure 1. The Kuhn Cycle. According to Kuhn (1962), within a field of science, "Normal Science" proceeds as research is performed under a governing scientific model (or paradigm). Models are incrementally revised as new evidence is gathered ("Model Drift"), until a point is reached where the model can no longer effectively explain the new data ("Model Crisis"). These in turn lead to a period of "Model Revolution" as the community grapples with an alternative model/s, until one becomes established as the new paradigm ("Paradigm Change"), and the cycle repeats. Graphic by Zachary Klein.

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Math Matters

A Simulated Universe?

by Don DeYoung, PhD

A strange view of physical reality is gaining in popularity as shown by mega Google hits. The suggestion is that the universe we experience is actually an elaborate, artificial computer game produced by advanced, inventive aliens. Galaxies and gravity, our lives and thoughts – none are real but instead are fragments of a computer program. In 2003, Swedish philosopher Nick Bostrom wrote a related article which has gained traction titled "Imagine living in a computer simulation" (*Philosophical Quarterly*, 53 (211):243–255). Promoters of the idea include Elon Musk and Neil deGrasse Tyson. This rejection of reality is entirely unbiblical and nonsensical, but nevertheless the reasoning is interesting. The following six points summarize efforts to reinterpret physical data in terms of a vast computer game.

First, the obvious suitability for life on earth is a powerful intelligent design argument. The simulation response is that aliens wrote the software this way so that "artificial life" could exist. *Second*, mathematics is suggested to be an alien programming language instead of the language of creation itself. *Third*, fundamental physical laws such as gravity and thermodynamics are viewed as arbitrary rules or constraints built into the computer code. The *fourth* idea concerns light. We recognize light speed as a physical limit on how fast objects and light itself can travel. In the simulation view, light speed is interpreted as the limiting electrical signal transmission time within the computer processor.

The final two simulation ideas relate to the quantum world. For the *fifth* concept, it is known that on the micro level, energy is quantized and exists in discrete amounts or "quanta" rather than uniformly smooth. Promoters of simulated reality explain that our concept of quantized energy is actually the limited resolution of the computer code, similar to pixelation in digital images. *Sixth*, it is claimed that simulation explains quantum entanglement, the mysterious interaction between particles which are physically separated. It is claimed that such particles are not distanced from each other at all, but instead are simply mathematical entities within the computer.

Image credit: Pixabay

This description of virtual reality is both bizarre and intriguing. It suggests the ultimate conspiracy, that everything physical is fake, including our existence. The idea assumes a high level of super intelligent life but attributes it to godlike aliens rather than the Creator.

All computer programs and mathematical models are fallible and have a limited lifetime of usefulness. In sharp contrast, Hebrews 13:8 states that our Creator Jesus Christ is the same yesterday and today and forever. CM

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"Puzzle" is Kuhn's term for the basic research activity of a field of science. Kuhn argues that the "scientific tradition" (elsewhere described by Kuhn as a paradigm) of the scientist tells him what sorts of puzzles — experiments, field work, computer modeling, etc. — are worth trying; in other words, they are problems that should be solvable if he can just set up the experiment correctly, develop the proper technology, or find the right fossil.

Of course, like Kuhn, Glazner and his colleagues remain committed to a conventional view of Deep Time and **Uniformitarianism**. They do not subject these particular beliefs to the scrutiny that they advocate for other beliefs, which is to be expected: Uniformitarianism and Deep Time are held to so strongly by the geologic community, and are believed to be supported by so many independent lines of evidence, it is difficult to imagine them being reevaluated from a secular/conventional point of view.

Nevertheless, these authors correctly recognize the "blinding influence" that these sorts of unquestioned paradigms can have on a researcher. They favorably quote another 19th century geologist, Thomas Chamberlin, who wrote the following:

> The moment that you come up with an explanation for a phenomenon, you develop affection for your intellectual child, and with time this grows ever stronger. You proceed rapidly to acceptance of the theory, followed by unconscious selection of data that fit and unconscious neglect of data that do not… **When these biases set in, collection of data and their interpretation are dominated by affection for the favored theory** until you are convinced that it has been overwhelmingly confirmed. It then rises to a position of mind control, guiding observation and interpretation—from a favored child into your master. When this last stage has been reached, unless the theory happens to be correct, all hope of progress is gone. (Emphasis added)

Figure 2. A geology student makes field observations in Washington State, near Mt. St. Helens. Photo by Zachary Klein, 2022

While it may seem remarkable to read such frank statements by committed uniformitarian geologists, it underscores an argument that creationists have made for a long time. The uniformitarian (or evolutionary) worldview colors the scientist's perception of the evidence, causing them to overlook anomalies in geology (such as the lack of evidence of long periods of erosion and topographical evolution, within the rock record) as well as positive evidence for a global catastrophe (Reed & Williams, 2011). Ultimately, what Kuhn, Gilbert, Chamberlin, and Glazner et al. are acknowledging is that **science is not an infallible measure of truth**. Even very well-evidenced theories can be, and have been, shown to be false. The gathering of data, measurements of isotope ratios, cataloging of fossils can be precise and objective, but at some point human beings have to put the puzzle pieces together, and if they are guided by an incorrect paradigm, it is very likely that the picture they create won't be an accurate one.

Glazner and his co-authors are particularly interested in applying this model of thinking to the work of field geology — actual observation and data-gathering performed by geologists outside, with rock hammers, magnifying lenses, and khaki hats. Sometimes we associate such "hands on" activity with good science, especially as opposed to the more sterile work of laboratory analysis or computer modeling.

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They point out that, for the field geologist, the blinding effects of a ruling paradigm can be very tricky to discern.

> The universe of observable features in geologic fieldwork is vast, so we must filter what we see to avoid paralysis. A soil scientist might pay little attention to granite bedrock, whereas a granite petrologist would likely do the opposite. **This makes it difficult to see things for which one is not looking**. (Emphasis added)

The authors' point, consistent with the preceding discussion, is that the preconceptions of field geologists can cause them to *notice* particular features while missing others. This correlates to the ideas of Kuhn, as field geologists are in fact engaging in a "puzzle-solving expedition," and, as such, they are going to concentrate their attention on the features that seem most interesting or important, given the "rules" of the overriding paradigm.

The *GSA Today* article goes on to give several summary examples of geologic problems where the field observations were interpreted using a dominant theory or paradigm, only later to be reinterpreted based on either additional field work or laboratory analysis. Two of these examples are of particular interest to creationists and will be related here.

Formation of Granite Plutons

Three of the authors participated in a series of studies on the Cretaceous granite plutons in Yosemite National Park. As background, granite is a type of igneous rock, which rises through the Earth's crust in a molten state but does not erupt as lava from a volcano. Large granite bodies called "plutons," such as Half Dome in Yosemite, have long been understood to form as giant, molten blobs of magma forced their way upwards into the overlying rock (which later was eroded away, to expose the granite we see today).

Figure 3. Half Dome, Yosemite National Park. Photo by David Iliff. License: CC BY-SA 3.0

The *GSA Today* article discusses research done by the authors in the Tulumne Intrusive Suite (TIS), which includes the famous Half Dome and Matterhorn Peak. Based on existing models of granite formation, geologists had predicted that this granite pluton had formed relatively "quickly," within 1 million years of time. This is because the granite appears well-mixed, as though it was all molten or partially molten when it was emplaced. This should not be the case if it had taken more than 1 million years to do so — some parts of the granite should have already cooled to hard rock long before the next "batch" of molten material arrived. Long time intervals between magma injections should leave sharp contrasts within the granite at these contacts, but this is rarely the case in the TIS.

The authors' research consisted of a series of radiometric measurements across the TIS, which seemed to indicate that the granite plutons were composed of individual "sheets," with the outer sheets being the oldest and the inner being the youngest (over the span of around 10 million years, according to radiometric ages). These findings posed a major problem for the standard model of granite formation, however, and the scientists resisted their own conclusions for many years. Nonetheless, the authors ultimately accepted that the standard model was incorrect and that the TIS had indeed formed through episodes of magma injection (though still over the course of many millions of years). The authors acknowledge that, in light of their new thinking, they have difficulty explaining the well-mixed nature of the TIS. The internal structure of the granite should be quite different "if only small parts of a pluton are substantially molten at any given time" (as they would be, over millions of years).

Of course, creationists would reject the absolute ages given by these radiometric methods. However, the findings of Glazner and colleagues dovetail nicely

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with creationist research into the formation and cooling of granite. For example, Dr. Andrew Snelling has demonstrated that Polonium radiohaloes (circular rings of damage caused by radiation) in zircon crystals found within the biotite flakes of the TIS granite place very low limits on the amount of time that the granite formed and cooled, on the order of days and weeks (Snelling & Gates, 2009). Polonium is a byproduct of the radioactive decay of Uranium, and the distribution of these radiohaloes within the TIS granite provides positive evidence for rapid formation and cooling of each granite sheet, as well as evidence of accelerated radioactive decay of Uranium. Short timescales for the formation of the granite also agree with the observed internal structure of the TIS, with no evidence of long time intervals between injections of magma.

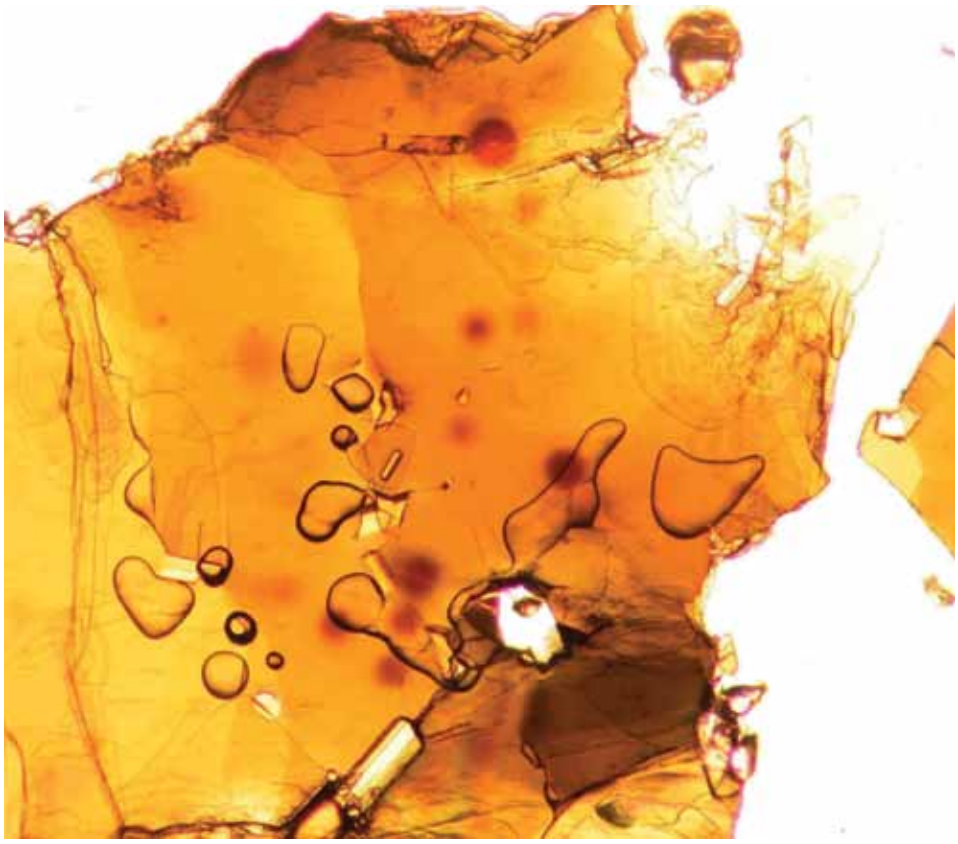

Figure 4. Polonium radiohalos in zircons from the Tulumne Intrusive Suite granite, from Snelling & Gates (2009). Used by permission.

The Mudrock Revolution

Another example given by Glazner et al. of a misinterpretation of geologic evidence is the (still very common) assumption that thin beds of shale and other mudstones (fine-grained sedimentary rocks) represent slow deposition of mud particles at the bottom of lakes or oceans. Since thin, alternating layers resemble "varves" that accumulate annually at the bottoms of modern lakes, it seems reasonable to use that analogy to describe thinly layered sedimentary rocks like mudstones. This belief has been used to infer many paleoenvironments in the rock record and continues to be mainstream criteria for "calm, placid seas."

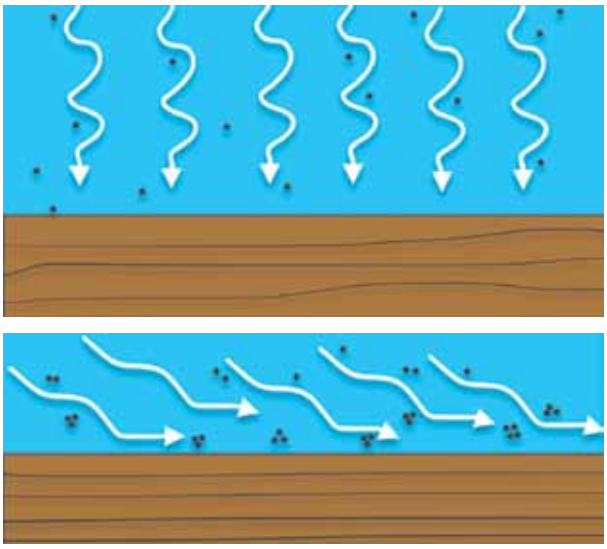

Figure 5. Hindered settling of mud particles out of suspension (upper) contrasted with deposition of flocculated particles in a current (lower). Graphic by Zachary Klein, after Macquaker & Bohacs (2007).

However, flume experiments by Juergen Schieber at Indiana University have demonstrated that mud particles can grow to the size of sand grains by clumping or "flocculating" in fast-moving water. These larger particles (floccules) then form ripples on the bottom of the water column, which migrate with the current to form thin beds of mud, very similar to what can be observed in the rock record. According to Joe Macquaker and Kevin Bohacs (the latter being one of the authors of the *GSA Today* article), in their comments on Schieber's work, these experiments "call for **critical reappraisal of all mudstones previously interpreted as having been continuously deposited under still waters**." (Emphasis added)

For creationists, the significance of this reinterpretation of mudstones, which comprise over 75% of the Earth's sedimentary rocks, is extraordinary. After decades of a ruling geologic theory that confidently declared these rocks to be the result of slow accumulation in calm conditions, this new research gives us reason to believe that many of these rocks had a high-energy origin and collapses the "time" that is represented by the rock record once again. Such conditions and timescales are fully consistent with what would be expected as sediments were deposited during the Global Flood.

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Paradigms and Creation Science

As creationists, we accept the Biblical account of Earth history as a reliable framework within which to conduct scientific exploration (such as the study of Flood geology). So we can say that the Biblical text, in particular the Genesis account of Creation, the Flood, and Babel, serve as a paradigm through which we can investigate and understand the scientific evidence. As many creationists have pointed out, it is not a battle of evidence vs. evidence, but rather a battle of worldviews: God's revealed history vs. a philosophical framework conceived by man, apart from God. As 2 Peter 3:4 predicted, the modern scientific community has adopted a set of preconceptions about the past that rule out the Bible's claims a priori. "*For ever since the fathers fell asleep, all things are continuing as they were from the beginning of creation*."

However, it's also fair to note that the Biblical paradigm doesn't give us all the guidance we would like, as creation scientists. There's very little in the way of specific information about geology, fossils, cosmic phenomena like supernovae and black holes, or even how many kinds of animals God created (and what they looked like). Ever since the publication of The Genesis Flood by John Whitcomb and Henry Morris in 1961, creationist researchers have sought to develop theories and models that are consistent with Scripture, while also explaining scientific evidence that the Bible does not directly address.

It is in this arena that the warnings of Glazner, Chamberlin, and Gilbert (as quoted in the *GSA Today* article) have application even for creationists. Like other scientists, we have to reckon with the fact that our preferred models and theories can have a "blinding influence" on our research and thinking. At times, this can lead to misunderstanding and acrimony among fellow creationists, for not seeing what seems "obvious" to another.

For this reason, we must always be careful not to conflate the infallible, unchanging testimony of Scripture — that there was a global Flood, or that the Earth is no more than several thousand years old, to give two examples — with the prevailing creation model in some field of science. In that light, it is also incumbent upon us to demonstrate humility and grace in our conduct and discussion within our community, to recognize that it is not adherence to a particular model or interpretation that defines creationism, but rather a faithful commitment to stand on the Word of God, and to do good science based on that foundation.

To the quote from Grove Gilbert in the opening paragraph, "*In the domain of the world's knowledge there is no infallibility*," we might add: "*but the word of our God will stand forever.*" (Isaiah 40:8) CM

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The Future Leaders Program

The Creation Research Society is committed to promoting robust, scientific research that highlights the awesome works of our Creator and promotes a biblically sound understanding of the world we live in. For this reason, we are currently running a special program called the Future Leaders Program. This is a sponsored membership program for high school and college level students who agree with the CRS Statement of Belief. This allows students to have access to our creation community and the resources of the society during their education. Future Leaders receive:

- digital access to our peer-reviewed research journal, the Creation Research Society Quarterly
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If you are interested in sponsoring a student, please call the CRS Office at 928-636-1153. We greatly appreciate this support. It makes a big difference! Interested students can apply at creationresearch.org/student-membership.

Top 3 Reasons to Believe Christianity is True

by Lindsay Harold

1. The God of the Bible is consistent with the cause of the universe.

Science and logic have shown us that the universe is not eternal and must have had an absolute beginning. Because time, matter, and space are all parts of this universe, the cause of the universe must be timeless, spaceless, and immaterial. It must also be extremely powerful and highly intelligent in order to have designed this universe. This begins to sound very much like the God of the Bible. Other religions like Hinduism or Mormonism teach an eternal universe or gods who are not the Creator of the universe. Christianity teaches an eternal Creator of the entire universe, which matches what we observe.

2. The evidence for the resurrection of Jesus proves Christianity is true.

The resurrection is the most important evidence for Christianity. If you can choose only one argument to learn and share with others, this is it. Even the Apostle Paul said that if Christ is not raised, our faith is in vain (I Cor. 15:14-17). It is on this one historical event that Christianity rests.

The four gospels are four separate eyewitness accounts that verify the resurrection. We also have independent attestation from non-Christian sources that the major claims of Christianity appeared very early, and we have the writings of the early church fathers to show that Christian claims have not changed over time.

Based on these historical sources, there are several facts that even non-Christian historians agree upon:

- Jesus died by crucifixion
- His tomb was empty
- The disciples truly believed Jesus rose from the dead and appeared to them
- Christianity exploded out of early 1st century Israel based on the testimony of the apostles

The best explanation for these four historical facts is that Jesus did actually rise from the dead. People may die for a story they believe to be true, but they don't willingly die for a story they invented and know to be false. The apostles were in the position to know whether the resurrection actually happened, and they went to horrible deaths without recanting. There is much more to be said here, but this is the core of the issue. The resurrection is historically defensible and forms the best explanation of the evidence.

3. The morality given in the Bible is consistent with natural law.

Natural law is very useful in showing that Biblical morality is not unreasonable or arbitrary, but rooted in our human design. We are meant to function in certain ways, and we can discern that by studying our bodies and minds. Immorality violates our design, not just a set of arbitrary laws in the Bible. God doesn't make up rules for no reason. Biblical morality is good for us and for society.

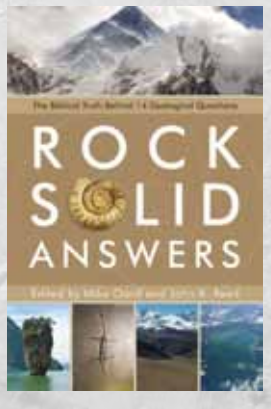
Biblical morality forbids such things as murder, theft, lying, and sexual promiscuity which we can all see produce many harms, both to individuals and to society as a whole. These are not arbitrary commands, but fit what we observe around us. If the Bible required us to do absurd things like stand on our heads to please God or harmful things like self-mutilation, it would be evidence that Christianity does not match our design. Instead, we see abundant evidence that we would all be better off if everyone followed the commands of God in the Bible.

There are many more lines of evidence and much more detail that could be covered for each of these, but these are the main points every Christian should be able to explain. CM

Available in the CRS Bookstore

Rock Solid Answers

Edited by Mike Oard and John Reed



This book provides compelling and comprehensive answers to 14 popular questions or challenges to Flood geology. Questions centering on the earth's geology remain some of the biggest stumbling blocks for people trying to reconcile biblical history with popular ideas of modern science. It contains chapters by nine leading experts: Andrew Snelling, Aaron Hutchinson, Emil Silvestru, Peter Klevberg, Rick Bandy, John Whitmore, Ian Juby, Mike Oard, and John Reed. It covers the topics of radiometric dating, caves, soils, paleosols, varves, ancient ice ages, dinosaur tracks, water covering Mount Everest, fossil distribution and preservation, and much more.

Master Books and Creation Research Society Books. 2009. 364 pages.

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Prayer Matters

Praise: We had a very successful board meeting with many ideas and action items for the next year.

Prayer: Please continue to pray that a suitable Lab Director will be found for the Van Andel Research Center. This position has not yet been filled, and it is sorely needed. For information on the position, visit creationresearch.org/job-at-crs.

Please pray for safe travel for all of our members who will be traveling to and from the ICC.

Thanks Again!

iDINO Update

Investigation of Dinosaur Intact Natural Osteo-tissue (iDINO) is studying biomaterial found in dinosaur fossils. Numerous studies have reported the persistence of pliable original tissue and proteins that are still present in dinosaur and other "ancient" fossils. Evolutionists recognize these findings contradict their claim that these bones are 65+ million years old. While evolutionists have proposed several possible explanations, they have been slow and unwilling to provide any empirical support for their claims. Thus, the iDINO project is currently investigating some of these speculative preservation mechanisms. Recently, the CRS, in conjunction with Brian Thomas (ICR) and others, has published the results on collagen decay in the journal Applied Spectroscopy. The article can be found at doi.org/10.1177/00037028221135634. The next phase is to look into collagen decay in alligator bones. Because of some generous donations, the iDINO project has been able to purchase a Fourier Transform Infrared Spectroscopy (FTIR) machine to process the samples in-house. Your continued prayers and support for this project are appreciated. CM